AMENDMENTS TO THE SPECIFICATION

Please amend paragraph [0096] as follows:

[0096] The MIMO processing architecture of **FIG. 5** uses the pre-processing matrix B **510** at the transmitter and the post-processing matrix A **550** at the receiver to coordinate the transmitted and received signals in a fashion that preserves the integrity of the transmitted signal $\underline{w}(k)$ ~~550~~505, while simultaneously pre-whitening the interference noise to create a set of directions in the symbol vector space, namely a subspace, that is free of interference noise. In particular, the interference noise after receiver post-processing is given by $AH_d\underline{d}(k)$. Property 3 shows that this received noise has been diagonalized, which means that the subspace that is orthogonal to the range space of the interference noise vector, namely the nullspace of the interference noise, now contains some of the channels of the multiline system. Hence, those channels are now free of noise and can carry significantly higher bitrates than the channels that are orthogonal to the nullspace of the interference noise, and therefore continue to be impaired. In other words, the MIMO processing of **FIG. 5** restricts the effect of the interference noise to the minimum possible number of channels, and therefore is optimal with respect to the criterion of maximizing the overall capacity of the multiline transmission system.